

## ABSTRACT OF THE DISCLOSURE

## CHEMICAL CONSTRUCTS AND THEIR USES

The invention provides a chemical construct for use in solid phase synthesis comprising a solid support Q having linked thereto groups  $Y^1R$  and  $Y^2R$ ; wherein R is a substrate or a coding tag and the groups  $Y^1$  and  $Y^2$  are connecting groups each having a first cleavage site, at least one of  $Y^1$  and  $Y^2$  having a second cleavage site located between the first cleavage site and group R, the first cleavage site being orthogonally and selectively cleavable with respect to the second cleavage site, and, when both groups  $Y^1$  and  $Y^2$  contain a second cleavage site, the second cleavage site in  $Y^1$  being selectively and orthogonally cleavable with respect to the second cleavage site in  $Y^2$ ; the second cleavage site being cleavable to release the substrate; and the first cleavage site being selectively cleavable to release a fragment Fr comprising the substrate R and at least a portion of the connecting group Y; and wherein: (i) the chemical fragment Fr contains a sensitising group G which sensitises the chemical fragment Fr to instrumental e.g. mass spectroscopic analysis; and/or (ii) the fragment Fr contains a means for imparting a characteristic signature to the mass spectrum of the fragment.

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